

What is claimed is:

1           1.     A system comprising:

2           a component subject to expansion and contraction as a function of  
3           temperature, the component comprising a material having a predetermined  
4           thermal expansion characteristic over a temperature range;

5           a temperature sensor thermally responsive to the component for sensing  
6           a current temperature of the component, wherein the temperature sensor is one  
7           of affixable to and integral with the component;

8           a temperature expansion indicator providing a visual indication of  
9           temperature versus distance from a reference point on the component to a point  
10          along a range of distances from the reference point, said point corresponding to  
11          an extent of expansion and contraction of the component according to said  
12          thermal expansion characteristic at a given current temperature of the  
13          component.

1           2.     The system of claim 1, wherein the temperature sensor and the

2           expansion indicator are integrated with the component, such that the  
3           temperature sensor provides a visual indication of the current temperature  
4           sensed by the temperature sensor in a temperature range, and a distance scale  
5           provides an expansion of said component relative to the reference point, in the  
6           temperature range.

1           3.     The system of claim 1, wherein the temperature sensor comprises

2           an indicator with an indicated position that moves according to the current  
3           temperature and is referenced to a distance corresponding to said expansion  
4           and contraction as a function of temperature.

1           4.     The system of claim 2, wherein the temperature sensor comprises

2           a plurality of indicator zones that are respectively visually activated at threshold  
3           temperatures, and wherein the indicator zones are spaced according to the  
4           thermal expansion characteristic.

1           5.     The system of claim 1, wherein the temperature sensor provides a  
2 temperature readout of the current temperature of the component and a  
3 distance scale provides a pattern of distance versus temperature according to  
4 said thermal expansion characteristic, and wherein the current temperature is  
5 referenced to a point on the distance scale.

1           6.     The system of claim 5, wherein the readout is connected to a  
2 corresponding point on the distance scale by graphic indicia.

1           7.     The system of claim 2, wherein the readout includes a numeric  
2 indicia by which the current temperature is referenced to a corresponding point  
3 on the distance scale.

1           8.     The system of claim 4, wherein the temperature indicator zones  
2 comprise thermally responsive visually changeable media.

1           9.     The system of claim 8, comprising a liquid crystal temperature  
2 responsive indicator strip mountable along the range of distances from the  
3 reference point and having said indicator zones spaced thereon according to  
4 the thermal expansion characteristic.

1           10.    The system of claim 8, wherein the component is a siding panel  
2 comprising a polymer, the reference point is a reference position on the panel  
3 for receiving a fastener, and the range of distances is placed for comparison  
4 between an edge of the panel and an edge of butt jointed adjacent panel,  
5 whereby the indicator zones determine a gap dimension between the panel and  
6 the adjacent panel at the current temperature.

1           11.    The system of claim 2, wherein the temperature sensor comprises  
2 a plurality of indicator zones that are spaced according to the thermal  
3 expansion characteristic and comprise thermally responsive visually

4 changeable media operable to indicate the current temperature by identifying a  
5 point representing a corresponding expansion along the distance scale.

1 12. The system of claim 11, wherein the component is a siding panel  
2 comprising a polymer, wherein the reference point is a reference position or the  
3 panel for receiving a fastener for mounting the panel; and the range of  
4 distances is placed for comparison between an edge of the panel and an edge  
5 of butt jointed adjacent panel, whereby the indicator zones determine a gap  
6 dimension between the panel and the adjacent panel at the current  
7 temperature.

1 13. The system of claim 10, wherein the temperature sensor is  
2 referenced to a positioning reference point adjacent to the edge of the panel.

1 14. The system of claim 12, wherein the temperature sensor is one of  
2 adhesively affixed to the panel temporarily, adhesively affixed to the panel  
3 permanently and integrally formed in the panel.

1 15. A siding installation method, comprising  
2 providing a first and second building component, one of said components  
3 comprising at least one panel characterized by a predetermined expansion  
4 characteristic whereby said panel expands and contracts with temperature, said  
5 predetermined expansion characteristic causing a variation in distance between  
6 a reference point and a comparison point on the panel;  
7 determining a current temperature of the panel during one of installation  
8 and testing, by measuring said current temperature using a temperature sensor  
9 that is one of integral and affixed to at least one of said building components;  
10 equating the current temperature to a distance between the reference  
11 point and the comparison point at said current temperature;  
12 assessing a position of the comparison point relative to the reference  
13 point for accommodating the expansion characteristic during subsequent  
14 changes in said current temperature.

1           16.    The method of claim 15, wherein the comparison point falls in a  
2           range of distances from the reference point corresponding to a range of panel  
3           temperatures according to said expansion characteristic, and further comprising  
4           indicating a point on the range of distances corresponding to the current  
5           temperature.

1           17.    The method of claim 16, wherein said indicating of the point on  
2           the range of distances comprises placing a temperature sensor over the range  
3           of distances wherein the temperature sensor has a temperature scale  
4           corresponding to a scale of indicator distance that corresponds to the range of  
5           distances corresponding to the current temperature sensor.

1           18.    The method of claim 17, wherein the temperature sensor  
2           comprises a movable indicator having an expansion material for adjusting an  
3           indicated position corresponding to the current temperature.

1           19.    The method of claim 17, wherein the temperature sensor  
2           comprises an array of visible indication points activated to represent the current  
3           temperature.

1           20.    The method of claim 17, further comprising placing the  
2           temperature sensor at a predetermined position at an edge of one of the  
3           building components, for indicating a nominal spacing from an edge of an other  
4           of said building components, to accommodate said predetermined expansion  
5           characteristic.

1           21.    The method of claim 16, wherein indicating the point on the range  
2           of distances comprises referencing a temperature readout value to a position on  
3           a hatch pattern laid out for representing a position versus a temperature.

1           22.    An article of manufacture comprising: a siding panel, a  
2           temperature sensor, and an array of spacing indicators, wherein the spacing  
3           indicators correspond to a position of a point on the siding panel at a distance  
4           from a remote reference point, which distance changes with thermal expansion  
5           and contraction of the panel, and wherein the spacing indicators are configured  
6           for a thermal expansion characteristic of the siding panel at temperatures  
7           determined by the temperature sensor.

1           23.    The article of claim 22, wherein the temperature sensor and the  
2           array of spacing indicators both are one of integral with the siding panel and  
3           affixed to the siding panel.

1           24.    The article of claim 23, wherein the temperature sensor has at  
2           least two temperature indication points, and wherein the temperature indication  
3           points are associated by graphic marking with said array of spacing indicators.

1           25.    The article of claim 23, wherein the temperature sensor has at  
2           least two temperature indication points that are spaced to correspond to the  
3           thermal expansion characteristic over a difference between at least two  
4           temperatures identified by said at least two temperature indication points, such  
5           that the temperature indication points provide said array of spacing indicators.

1           26.    The article of claim 23, wherein the temperature sensor and the  
2           array of spacing indicators are at different positions spaced apart on said panel.

1           27.    The article of claim 26, wherein the temperature sensor is placed  
2           at one end of the panel and the array of spacing indicators are placed at an  
3           opposite end of the panel, whereby a gap at a joint between two identical said  
4           panels can be set by reference to the temperature sensor of one of said panels  
5           and the array of spacing indicators of the other of said panels.

1           28.    A temperature indicator for a siding panel, comprising:  
2           a temperature sensor operable to determine a current panel temperature  
3           independently of ambient temperature; and,  
4           a graphic scale on the siding panel illustrating a corresponding effect of  
5           thermal expansion over differences in temperature, the current panel  
6           temperature being identifiable as a position on the graphic scale, wherein the  
7           graphic scale is placed and configured to show how closely an edge of the  
8           panel can be placed to an adjacent surface while avoiding interference over a  
9           range of thermal expansion temperatures.